

## DIAGNOSIS OF EARLY PULMONARY TUBERCULOSIS.<sup>1</sup>

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THE recognition of early pulmonary tuberculosis belongs rather to the physician in general practice and to the internist than to those who devote their whole professional time to the care and management of tuberculous patients. Active tuberculosis is the only form that concerns the clinician, and is the only one of import to the patient. This fact, emphasized by Baldwin a few years ago, has not been fully appreciated by the profession. Early pulmonary tuberculosis, like the diagnosis of most chronic diseases in their early stages, cannot be made at one seance with the patient. Pulmonary tuberculosis which can be positively diagnosed at the first examination is one of established pathology and probable permanent damage. One must realize then at the outset that the diagnosis of this disease in its early stages, when amenable to cure, is very often a difficult problem, and its importance makes the time spent on solving this problem for a patient well worth while. When the problem is solved it is not only fair but absolutely essential to tell the patient whether or not the disease exists, because upon his coöperation depends the curability more than in any other disease. The chief complaint which these cases present is frequently suggestive of something remote from the seat of pathology. Epigastric pain, fatigue, loss of weight, palpitation, flushing, malaise, as well as the common ones of cough, fever, asthenia, or expectoration are among those offered by the patients. As in chronic diseases of the stomach and intestinal tract a study of the history of these cases is of prime importance. A definite knowledge of tuberculous association is of far more significance than that of diseased ancestry. An attack of pleurisy, especially if accompanied by effusion, is highly indicative of tuberculous potentiality. The identification of some local focus, either in the tonsil or cervical glands, is a possible indicator of the damaging infection in the lung.

An inquiry which elicits from the patient hemoptysis, even of the slightest degree, while not pathognomonic of tuberculosis, is a fairly accurate sign and deserves analysis. Again, analogous to the study of carcinoma, syphilis, and leukemias a history of great loss of weight without apparent cause to the patient, particularly with some or all of the foregoing factors, justifies suspicion of pulmonary tuberculosis. A brief record of the day's work and life and symptoms of such a patient during his waking hours deserves the utmost

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cognizance. The examination of the patient himself presents two aspects: (1) the physical, which up to the present time is still the more valuable, and (2) the laboratory, which is an important accessory and may in the future supersede the physical. The physical examination includes a prolonged study of recorded temperatures, weight studies under forced feeding, and repeated examination of thorax with recorded areas, the seat of rales. The laboratory examination comprises tests of the sputum, skin, blood, roentgen-ray findings, and the complement-fixation. In making observations of temperature study it is my own practice to supply the patient with an ordinary filing card, upon which definite hours are marked at which he is to take his temperature and record it. This is kept over a period of ten days, when he returns his card for my observation and analysis. At the same time he is placed on a mixture of milk, cream, and eggs, the equivalent of at least 1000 calories, which is added to his ordinary general diet. Also, his weight is noted before carrying out this plan and at its completion.

During this period of diagnostic study the patient is instructed to continue his ordinary occupation and in no way to modify his mode of living. The usual methods of physical diagnosis are carried out next to the naked thorax and a careful record made of suspected pathological findings. This is particularly true of voice transmission and the presence of rales. The so-called latent rale is diligently sought for and their location recorded and marked on a graphic figure.

At the second and subsequent examinations, should they be necessary, these locations and the presence of rales are carefully compared and checked up with former findings. Persistent slight rise in temperature, especially in the late afternoon, at the time of greatest fatigue, with increased pulse-rate, which should be observed at this time; no satisfactory gain in weight under the forced feeding; the presence of rales and particularly the latent rale in the same area formerly observed, spells presumptively early pulmonary subereulosis.

Sputum analysis, while always desirable, is really not a true factor in the early recognition of this disease, because its absence is not conclusive negative evidence and its presence usually denotes established tuberculous infection, with damage. The various skin tests, either the cutaneous or intracutaneous, as introduced by von Pirquet and others, have two values: (1) in the examination of children under eight to ten years of age, and (2) as a preliminary test to the subcutaneous tests as practised on adults. The eye test, or Calmette test, has fallen into disuse because of dangers to the eye; but some clinicians believe in its revival, as it has a greater prognostic interpretation than any of the others. Ordinary blood counts have comparatively little significance, although the presence of a slight leukocytosis of 10,000 to 12,000 is found in tuberculosis,

malaria, and carcinoma, and while differential counts show increased lymphocytosis, a condition which may also be present in syphilis. It was the hope of the roentgen-ray worker that by the fluoroscope and the plate early active tuberculosis could be readily solved. This has proved a chimera, because while the damaged lung is often apparent in its diseased parts on the plate, its activity can in no way be designated nor recognized. The fluoroscope, while showing the movement, is of little value in determining early pathological activity.

In this country the complement-fixation test for tuberculosis has best been presented by Craige, of the United States Army. This test in its technic is analogous to other complement-fixation tests, the most familiar of which is the Wassermann test for syphilis. This reaction is not only of value in suspected cases in which no physical signs are present, the best cases for cure, but also shows that cases which are considered in a state of cure are not entirely free from infection as long as this test is positive. The great value in this study along these lines is the fact that heretofore so-called cured cases will be handled better and longer and the ultimate results will be much more lasting.

Purposely, there has been avoided in this brief paper all the stereotyped signs and symptoms, which in text-books are attributed to this disease. They almost all stand for established tuberculosis. Incipient tuberculosis, much better called early tuberculosis, and the cases most hopeful of cure may require all the foregoing studies before arriving at a definite diagnosis; but so much depends on the proper solution of these cases, from a sociological point of view as well as industrial and economic aspects, that it is incumbent upon us not to treat these lightly or carelessly.

Some conclusions are: (1) the diagnosis of early curable tuberculosis is difficult at times; (2) suspicious cases should, if possible, be worked out to a confirmation by all means available; (3) the only tuberculosis of the lung that concerns us is active tuberculosis; (4) such diagnosis is best made by the general medical man; (5) an immediate diagnosis is sometimes impossible, and a statement made to the patient that you can find no active tuberculosis is an honest one, no matter what subsequent developments may occur.